

ARCHITECTURAL MOLDINGBACKGROUND OF THE INVENTION

This invention relates to architectural molding installed at the base, mid-portion or top of an architectural wall and, in particular, to a molding composed of flexible plastic foam.

Decorative moldings are routinely used in architecture to provide decoration and to cover various raw edges and imperfections. Such moldings are most commonly made of wood, but other rigid materials have been employed. In general, such materials are relatively expensive and installation of the molding has required substantial skill as a workman.

U.S. Patent No. 5,496,512 shows thin molded plastic (e.g., polystyrene) molding strips for application to walls. The molding strips rely on thinness to provide flexibility and are either vacuum or pressure molded. A central portion of the molding is attached to the wall and one or more of the edges of the molding are resiliently flexed into snug engagement with the wall. The molding is installed using overlapped joints. There is a need for more effective architectural molding and architectural molding which is easier to install.

SUMMARY OF THE INVENTION

An architectural molding includes an extruded flexible plastic foam member having a front side, a rear side and a cross sectional profile. Also included is a layer of pressure sensitive adhesive affixed to at least a portion of the rear side and a release strip releasably adhered to the layer of pressure sensitive adhesive.

A method for installing the architectural molding to a structure includes providing the molding; removing a portion of the release strip to expose a portion of the pressure sensitive adhesive; adhering the exposed portion to the structure; flexing

1 a portion of the molding not yet adhered to the structure away
2 from the structure and removing an additional portion of the
3 release strip to expose an additional portion of the pressure
4 sensitive adhesive; and adhering the additional portion to the
5 structure.

6 A tool for the application of an architectural molding
7 between a wall and a ceiling, where the molding has a front side,
8 a rear side and a cross sectional profile. The tool includes a
9 ceiling following surface; a wall following surface; a profile
10 following surface; and a handle, the handle providing a manual
11 grip for sliding the tool along a wall and ceiling intersection
12 and the profile following surface providing pressure resistive
13 support to a central portion of the profile, while permitting
14 respective outer portions of the profile to be pressed against
15 the wall and the ceiling.

16 A method for installing the architectural molding between
17 a wall and a ceiling using the tool is also provided. The method
18 includes placing the tool against the intersection; removing a
19 portion of the release strip to expose a wall portion and a
20 ceiling portion of the pressure sensitive adhesive; placing the
21 central portion against the profile following surface and
22 adhering the wall portion to the wall and the ceiling portion to
23 the ceiling; flexing a portion of the molding not yet adhered to
24 the wall or ceiling away from the wall or ceiling, respectively,
25 and removing an additional portion of the release strip to expose
26 an additional portion of the pressure sensitive adhesive; sliding
27 the tool to cooperate with the flexed portion; and adhering the
28 additional portion of the pressure sensitive adhesive to the wall
29 or ceiling.

30 An architectural molding adapter includes an elongate sheet
31 of plastic material having a back side and a front side; a plurality
32 of longitudinal fold grooves in the sheet; a pressure
33 sensitive adhesive affixed to longitudinal peripheral portions
34 of the back side; and a release strip releasibly adhered to the
35 pressure sensitive adhesive, the adapter being adapted to provide

1 an intermediate attachment point for multiple rows of crown
2 molding when the adapter is folded along a plurality of the fold
3 grooves into a generally rectangular cross section structure when
4 attached to a wall and ceiling.

5 A method for installing multiple rows of pressure sensitive
6 adhesive backed crown molding using the adapter is also provided.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross sectional perspective view of an installed molding according to the invention for a top portion of a wall.

FIG. 2 is a cross sectional perspective view of an installed molding according to the invention for a mid-portion of a wall.

FIG. 3 is a cross sectional perspective view of an installed molding according to the invention for a base portion of a wall.

FIG. 4 is a perspective view of a package containing a molding according to the invention.

FIG. 5 is a cross sectional longitudinal elevation view of nested layers of molding according to the invention.

FIG. 6 is a longitudinal elevation view (with many elements shown in cross section) showing a tool in use for installing molding according to the invention.

FIG. 7 is a perspective view showing a tool in use for installing molding according to the invention.

FIG. 8 is a longitudinal elevation view or end view of an adapter for installing multiple rows of molding according to the invention.

FIG. 9 is a cross sectional longitudinal elevation view of the adapter of FIG. 8 in use with moldings according to the invention.

FIG. 10 is a cross sectional view of a molding according to the invention.

1 DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

2 When a range such as 5-25 is given, this means preferably
3 at least 5 and preferably not more than 25.

4 Referring to FIG. 1, an architectural molding 10 is shown
5 installed between a top portion of a wall 12 and the edge of a
6 ceiling 14. Moldings at this location are often referred to as
7 crown moldings. The molding 10 includes an extruded flexible
8 plastic foam member 16 having a cross section or cross sectional
9 profile 18 and a rear side or surface 20 and a front side or
10 surface 22. The front side or surface 22, when viewed in cross
11 section (such as looking down the longitudinal length of the
12 molding), determines the front surface profile of the molding.
13 Correspondingly, the rear side or surface 20 determines or
14 defines a rear surface profile. In the preferred embodiment, the
15 cross sectional profile 18 is constant along the longitudinal
16 direction of the member 16; that is, if you look at the cross
17 sectional profile 18 every few feet as you travel down the length
18 of member 16, the profile 18 will remain the same.

19 The member 16 is provided with one or more layers of
20 pressure sensitive adhesive. For example, pressure sensitive
21 adhesive layers 24, 26 may be affixed on the rear side 20 on
22 outer or edge portions of the molding 10 that will contact the
23 wall or ceiling. Referring to FIG. 7, a release strip 28, 29 is
24 initially adhered to each area or layer of pressure sensitive
25 adhesive to protect the adhesive until installation of the
26 molding 10.

27 The member 16 is extruded in continuous lengths having a
28 constant cross sectional profile 18. The extrusion process
29 ordinarily results in a constant, unchanging cross sectional
30 profile. Fig. 1 illustrates a compound cove crown molding (see
31 the front surface profile). Other types of moldings having a
32 continuously constant or uniform cross section and front surface
33 profile can be utilized, such as, the following types of molding

(these being determined by the front surface profile): crown, cove, fillet and fascia, torus, reeding, cavetto, scotia, conge and beak. Various front surface profiles for crown and cove moldings can be used, such as those illustrated in molding catalogues from Hiland Wood Products, Walnut Creek, Ohio and American Hardwood, Columbia Station, Ohio, which are known in the art and which are incorporated herein by reference. The member 16 is preferably a low density, closed cell, thermoplastic flexible foam that is resiliently compressible and resiliently flexible. The flexible plastic foam preferably has a density of 1.6-3, more preferably about 2, lbs. per cubic foot, preferably less than 9, 7, 6, 5, 4 and 3 lbs./cu. ft. The flexible foam is resilient and can be easily bent and compressed and will then return to its original shape. The flexible plastic foam is preferably polyethylene, rubber latex, polypropylene, polyurethane, polyvinyl chloride or polyolefin flexible plastic foam, more preferably polyethylene flexible plastic foam, preferably made with an isobutane blowing agent. The extruded flexible plastic foam is preferably polyethylene, less preferably substantially or principally or predominantly polyethylene or the major proportion of which is polyethylene. Such polyethylene foams are available as Nomafoam from Nomaco, Inc., Zebulon, NC.

The layer of pressure sensitive adhesive 24, 26 may be applied to the member 16 either while member 16 is being made or at a later time. In the preferred embodiment, the adhesive may be, for example, a hot melt pressure sensitive adhesive applied hot (such as 350°F) to the member 16 and becoming affixed thereto as the adhesive cools. A suitable adhesive is available from H.B. Fuller Company, St. Paul, MN, as HL-8209 DR. Preferably, the pressure sensitive adhesive is high heat resistant, permanent grade with a 180 degree peel (60 sec./75F, 1 mil.) of at least 5, more preferably at least 6 or 7, lbs./inch, polyken tack of at least 1500 grams, loop tack of at least 50, 70 or 90 ounces. The release strips 29, 28 are releasibly adhered to the adhesive 24, 26, respectively. It is also possible to affix the adhesive

1 in other ways, such as applying the adhesive to the release strip
2 and then applying the adhesive/release strip from web-like rolls.

3 The member 16 may be pre-colored to desired colors by adding
4 coloring to the plastic foam material prior to extruding. This
5 produces a front side 22 suitable for use without further
6 painting, coating, etc.

7 One may also apply a primer to the front side 22 either
8 during manufacturing (pre-primed) or at the job site to make the
9 molding 10 paintable (including techniques such as "wood-
10 graining"). A primer such as Chil-Perm CP-30 from Childers
11 Products Company may be used. The primed surface may then be
12 painted.

13 It is also possible to treat the front surface 22 with
14 corona charge for corona treatment. This electrostatic treatment
15 allows paint to adhere directly to the surface 22 without a
16 primer coating. Alternatively the front surface can be treated
17 with corona charge in-line at the manufacturing facility, and a
18 flexible and quick dry paint or primer can also be applied in-
19 line.

20 In the preferred embodiment, the molding 10 is produced,
21 packaged and sold in at least 30 foot lengths and, typically, in
22 lengths of at least 50, 75, 100 and 120 feet. The profile 18 is
23 typically in the range of 3/16-3/4, more preferably 1/4-1/2, more
24 preferably about 3/8, inch in thickness (and 2 to 8 or 3 to 6 or
25 about 4.5 inches wide, that is, from the tip near layer 24 to the
26 tip near layer 26). This thickness allows segments of the
27 molding 10 to be joined with either butt or mitered joints. The
28 molding 10 can be accurately cut with a cutting guide such as a
29 miter guide with a hand-held serrated knife.. The thickness of
30 the molding 10, when cut, provides a wide attachment face or
31 bonding surface for butt or miter joints to product precise
32 uniform attachments. The thickness also may be chosen to provide
33 sufficient strength to span the space between the wall 12 and the
34 ceiling 14. The resilience of the molding 10 promotes tight
35 joints. The joints may be glued with a suitable adhesive (e.g.,

1 FD-8133 manufactured by H.B. Fuller Company) or heat bonded.

2 Referring to FIG. 4, the molding 10 may be packaged in rolls
3 within a box 30 such as a cardboard box. An opening or slot 32
4 in the box 30 may be used to dispense the molding 10 as it is
5 installed. For example, in the case of 4.5 inch wide crown
6 molding, a 30 x 30 x 5 inch box can hold at least 120 feet of the
7 molding 10. The weight of such a package and molding combined
8 would typically be less than 6 pounds. Preferably, the front
9 side 22 of the molding 10 faces the inside of the roll (as shown
10 in Fig. 4) to facilitate installation. Preferably, the molding
11 10 comes out of the box "right-handed", that is, as it comes out
12 of the box you start on the right side of the wall and work to
13 the left. During this process the molding comes out of the box
14 properly oriented so that the top of the molding is against the
15 ceiling and the bottom is against the wall. In this way the
16 molding is coming out of the box "right-handed". Fig. 4 shows
17 the molding 10 coming out of the box "left-handed".

18 Referring to FIG. 5, the profile of the molding 10 may be
19 advantageously chosen to provide nesting between the layers 10a,
20 10b, 10c, 10d of a roll of the molding 10. This nesting
21 maximizes the amount of the molding 10 in a given roll diameter
22 and minimizes the likelihood of creases in the surface of the
23 molding 10. Preferably, nesting is achieved by providing a front
24 surface profile which matches or substantially matches or matches
25 in significant portions the rear surface profile. Typically this
26 will result when the cross sectional profile 18 is of
27 substantially or generally uniform thickness.

28 Referring to FIGS. 1 and 7, the molding 10 may be installed
29 by removing a portion of the release strips 28, 29 to expose
30 portions of the pressure sensitive adhesive 24, 26. The exposed
31 portions are then adhered to the ceiling/wall structure and a
32 portion of the molding 10 that is not yet adhered to the
33 structure is flexed away from the structure and more of the
34 release strips 28, 29 are removed to expose an additional portion
35 of the adhesive 24, 26. The additional exposed portions are then

1 adhered to the structure.

2 Typically, it may be desirable to apply an aesthetic coating
3 such as paint to the molding 10 after it is adhered to the
4 structure.

5 Referring to FIGS. 6 and 7, a tool 40 for easier
6 installation of the molding 10 includes a ceiling following
7 surface 42, a wall following surface 44, a profile following
8 surface 46 and a handle 48. In the preferred embodiment, the
9 tool 40 is formed from an element 50 having a generally right
10 angle cross section. The element 50 may be formed from, for
11 example, a sheet of metal or rigid plastic and is preferably of
12 constant width as shown in Fig. 7. With reference to Fig. 6, the
13 element 50 extends from the handle 48 upward to the curved
14 portion 51 and across to near the tip 53 of the tool 40. The
15 element 50 has a first outside surface corresponding to the
16 surface 42 and a second outside surface corresponding to the
17 surface 44. A block of plastic foam 52 (preferably flexible
18 polyethylene foam) attached to the inside surfaces of the element
19 50 provides the surface 46. The surface 46 matches the contour
20 of the central portion 54 of the rear side 20 of the profile 18.
21 Less preferably the portion of element 50 corresponding to
22 surface 42 may be omitted and block 52 may be of other materials
23 such as solid plastic. The tool 40 is shaped so that the two
24 tips (one of which is tip 53) do not stick out far enough to
25 contact the pressure sensitive adhesive 24, 26.

26 The handle 48 is provided by an extension from the element
27 50. The handle 48 is shown extending from the surface 44, but
28 it is also possible to extend from the surface 42.

29 In use, the tool 40 is manually grasped by the handle 48 and
30 the tool placed against the intersection of the wall 12 and the
31 ceiling 14. A portion of the release strips 28, 29 is removed
32 to expose portions of the pressure sensitive adhesive 24, 26.
33 The central portion 54 is placed against the surface 46. This
34 guides the molding 10 into the correct position relative to the
35 wall 12 and the ceiling 14 and provides pressure resistive

1 support to the central portion 54 while allowing the manual
2 pressing of the adhesive 24, 26 against the wall 12 and ceiling
3 14, respectively.

4 The exposed portions are adhered to the wall 12 and the
5 ceiling 14, respectively, and a portion of the molding 10 that
6 is not yet adhered to the wall or ceiling is flexed away from the
7 wall or ceiling and more of the release strips 28, 29 are removed
8 to expose additional portions of the adhesive 24, 26. The tool
9 40 is slid and repositioned to cooperate with the flexed portion
10 as the flexed portion is positioned by the surface 46 for
11 adhering. The additional exposed portions are then adhered to
12 the wall 12 and the ceiling 14. In this manner the tool 40 is
13 progressively slid along the top of the wall and a long
14 continuous length of molding 10 is adhered in place.

15 Referring to FIG. 2, a molding 10' similar to the molding
16 10 of FIG. 1 is shown installed on a mid-portion of the wall 12.
17 Moldings at this location are often referred to as chair rails.
18 The rear side 20' of the molding 10' is generally flat and like
19 the molding 10, is provided with pressure sensitive adhesive
20 (unshown) for adhering the molding 10' to the wall 12. The
21 molding 10' may be manufactured and packaged the same way as the
22 molding 10 and installed similarly. In uninstalled form, the
23 molding 10' is also provided with at least one release strip.

24 A preferred chair rail or panel molding 74 is shown in Fig.
25 10, which is designed for convenient nesting. Molding 74
26 (preferably 1.5 inches from top to bottom) has a front surface
27 76 and a rear surface 78, the lower flat portion of which is
28 coated with a layer of pressure sensitive adhesive 80 for
29 adhesion to a wall.

30 Referring to FIG. 3, a molding 10'' similar to the molding
31 10 of FIG. 1 is shown installed on a base portion of the wall 12.
32 Moldings at this location are often referred to as base molding
33 or baseboard molding. The rear side 20'' of the molding 10'' is
34 generally flat and like the molding 10, is provided with pressure
35 sensitive adhesive (unshown) for adhering the molding 10'' to the

1 wall 12. Pressure sensitive adhesive may be applied along the
2 entire rear side 20'', or in strips, such as strips along the
3 top, middle and bottom of side 20''. Pressure sensitive adhesive
4 may also be applied along the bottom surface 21 of molding 10''.
5 The molding 10'' may be manufactured and packaged the same way
6 as the molding 10 and installed similarly. In uninstalled form
7 the molding 10'' is also provided with a release strip over each
8 strip of pressure sensitive adhesive. Other front surface
9 profiles for chair rail moldings and base moldings can be used,
10 such as those illustrated in molding catalogues from Hiland Wood
11 Products, Walnut Creek, Ohio and American Hardwood, Columbia
12 Station, Ohio, which are incorporated herein by reference.

13 Referring to FIGS. 8 and 9, an adapter or stepform 60 for
14 applying multiple rows of the moldings 10 is shown. The adapter
15 or stepform 60 is an elongate sheet, for example 6 to 18 inches
16 wide, from 1/16 to 1/2, more preferably 1/4 to 5/16 or 3/8,
17 inches thick and of any convenient length, such as at least 30,
18 50, 75, 100 or 120 feet. The adapter 60 is preferably of the
19 same flexible plastic foam material as the member 16, except
20 preferably a little more dense; preferably having a density of
21 1.6-9, more preferably 2-6, more preferably 3-4, more preferably
22 about 3, lbs. per cubic foot. Less preferably it is a plastic
23 material which is resilient, flexible and coilable, such as solid
24 or lightweight plastic. The adapter may be, for example 8 inches
25 wide and 3/8 inch thick and have a series of longitudinal scoring
26 or fold grooves 62. The grooves 62 may be on either the front
27 or back side or both, preferably the back. The grooves are
28 spaced to provide convenient selection of spacing between folds,
29 for example, 1/2 or 3/4 inch to accommodate various combinations
30 of molding sizes. The peripheral portions of the back side of
31 the adapter 60 are provided with pressure sensitive adhesive 64,
32 66 and release strips 68, 70, respectively. Other strips or
33 layers of pressure sensitive adhesive (with release strips), such
34 as illustrated at 71a, 71b, 71c, 71d and 71e, may optionally be
35 added longitudinally between each pair of adjacent grooves 62.

1 The adapter 60 is manufactured and packaged in rolls as described
2 above and installed with a tool like tool 40 except that the
3 profile following surface 46 is shaped to correspond to the shape
4 of the adapter 60 as installed.

5 In use, the adapter 60 is folded on desired grooves 62 to
6 form a generally rectangular cross section (in combination with
7 the wall 12 and the ceiling 14), preferably 3.5 x 3.5 inches.
8 Release strips 68, 70 are removed and, using a tool 40, the
9 adapter 60 is attached to the top portion of the wall 12 and to
10 the edge portion of the ceiling 14. Then as described above and
11 using tool 40, a crown molding or molding 10 is attached between
12 the adapter 60 and the ceiling 14. Another row of molding 10 is
13 attached between the wall 12 and the adapter 60. In this way,
14 the adapter 60 serves as an intermediate attachment point for the
15 rows of moldings and permits a much larger and more complex total
16 molding surface to be installed. Note how a portion 61 of the
17 adapter 60 forms a portion of the exposed molding surface. If
18 the adapter 60 is folded further away from the adhesive (such as
19 at location 63) so that a flat portion of adapter 60 between 64
20 and 63 is against the wall, the adapter 60 may also be stapled
21 to the wall at location 65 for extra support. Alternatively, a
22 layer of pressure sensitive adhesive, such as at 71a, 71b, 71c,
23 71d or 71e, on the adapter 60 (with release strip removed) may
24 serve the function of the staple.

25 The moldings disclosed herein are much less expensive than
26 those of materials such as wood. Because the molding is light
27 and flexible, it can be quickly installed with few tools. No
28 unsightly nail holes are created and no sawing is required
29 because the molding can be cut with a sharp knife. This also
30 lowers the level of skill required for installation.

31 It should be evident that this disclosure is by way of
32 example and that various changes may be made by adding, modifying
33 or eliminating details without departing from the fair scope of
34 the teaching contained in this disclosure. The invention is
35 therefore not limited to particular details of this disclosure

1 except to the extent that the following claims are necessarily
2 so limited.

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